

TOOL FOR CONNECTING A CABLE CORE

The invention relates to a tool for connecting a cable core, in particular of communication cables, to cutting and clamping contacts according to the preamble of claim 1.

From EP-PS 0040307, there is known in the art a tool for connecting insulated cable wires. The said tool comprises a two-part handle, wherein a plunger is disposed longitudinally displaceable in a slider. At the front end of the plunger, at the plunger head, a wire cutter composed of two scissor legs is provided. One scissor leg is pivotable, and has, at its rear end, an oblique longitudinal slot, wherein a pin attached in the handle is guided. A longitudinal displacement of the plunger will, thus, lead to a pivoting movement of the scissor leg. For pressing an insulated cable wire into a cutting and clamping contact disposed in a terminal bank, the plunger head is first set down on the terminal bank. By hand, the handle is pressed toward the terminal bank, until the cable core is pressed into the contact slot of the cutting and clamping contact. The forward force exerted on the handle causes a relative movement between the plunger and the handle and between the scissor leg of the wire cutter and the pin attached at the handle, said pin gliding into the oblique longitudinal slot and turning the movable scissor leg such that a cutting edge provided at its front end cuts the cable core off.

It is disadvantageous, in this termination process, that the cutting-off process is, in a faulty operation, already carried out, before the wire is introduced, in its final position, into the clamping slot of the cutting and clamping contact. Thus, by the shorter cable length, an insufficient guiding of the cable core will result, thereby an incomplete contact

connection between the conductive core of the insulated cable wire and the cutting and clamping contact being performed. Furthermore, with thick cable wires, the striking mechanism is tripped, before the cable wire being completely pressed into the contact slot of the cutting and clamping contact. Thereby, an incomplete contact connection will result.

The invention is based on the object, therefore, to provide a tool for connecting a cable core of the aforementioned species, wherein cutting-off of the cable end and tripping of the striking mechanism will only be effected after pressing the cable wire into the contact slot, thus a proper contact connection being obtained.

The solution of this object is achieved by the characterizing features of claim 1. According to the invention, the tracer provided at the plunger head and connected with a locking device will release the longitudinal displacement of the plunger in the tool housing, and thus the cutting-off process, when the cable core to be connected has come to its final position in the contact slot of the cutting and clamping contact, and a proper contact connection has been achieved. Thereby, it is guaranteed that the end of the cable core is cut off only after being contacted.

Further advantageous embodiments of the invention can be found in the further subclaims. Reference is made to the embodiment according to claim 4, according to which the locking device can be unlocked over an unlocking device, independently from the tracer. Such unlocking is necessary, in particular, when two cable cores are to be connected in a contact slot of a cutting and clamping contact.

In the following, the invention is described in more detail, based on a preferred embodiment represented in the drawings. There are:

- Fig. 1 a side view of the tool, partially in a sectional representation,
- Fig. 2 the front view, partially in a sectional representation,
- Fig. 3 the tool placed onto a terminal bank, in the side view, and
- Fig. 4 the plunger head of the tool without cutting-off device, in the front view according to Fig. 2.

The tool 1 consists of a tool housing 12 formed by two plastic half-shells 14, 15, the tool housing 12 forming a handle 16. The two housing half-shells 14, 15 are fastened to each other over screws 17. In the handle 16 provided with an aperture 33 at one front face 32, a plunger 2 and a slider 19 are arranged longitudinally displaceably. Furthermore, a rotary knob as fixing device in the handle 16 and, at the front end of the plunger 2, at the plunger head 5, a cutting-off device 29 are provided. Such a tool, comprising a plunger, slider, cutting-off device and rotary knob, is described in more detail in EP 0040307, to which reference is explicitly made. In contrast to the prior art plunger, the plunger 2 of the tool 1 is provided with a locking device 3 being arranged between two side walls 24, 25 of the plunger 2.

The locking device 3 consists of a latch 10 and an arm spring 22. The latch 10 is provided with a transverse borehole 23. Into said transverse borehole 23 of the latch 10 and into two transverse boreholes of the side walls 24, 25 of the plunger 2, an axle 26 is inserted, such that the latch 10 is rotatably arranged in the plunger 2, as shown in particular in Fig. 4. On the axle 26, an arm spring 22 is accommodated, one arm 27 of which being inserted into another borehole 27 of the latch 10 and the other arm 28 of which being supported on a transverse wall 30 of the

plunger 2. The latch 10 accepts, thus, spring-loadedly a defined position, in which the hook-shaped section of the latch 10 will engage behind the front wall 34 of the housing shell 15. In a side wall 31 of the latch 10, a tracer bar 9 is hooked-in, which is extended up to the front section of the plunger head 5 and is adapted there, bent off by 90°, as a tracer 6. The tracer 6 is mounted between two press-in webs 11 of the plunger head 5.

For connecting a cable core 35 to a cutting and clamping contact 7 arranged in a terminal bank 36, first the cable core 35 is inserted over the contact slot 38 of the cutting and clamping contact 7. For pressing the cable core 35 in, a corresponding force is exerted by hand on the handle 16 in the direction of the arrow 39 against the force of the two compression springs 40, 41 provided in the handle 16, until the cable core 35 is pressed into the contact slot 38. For cutting the projecting end of the cable core 35 off, the cutting-off device 29 is arranged at the plunger head 5. This cutting-off process is effected by the longitudinal displacement of the plunger 2 in the handle 16. as the pin 42 fastened in the handle 16 slides into a longitudinal slot 43 of a shear arm 4 of the cutting-off device 29 and thereby deviates the movable shear arm 4.

Thereby, the cutting-off device 29 cuts the projecting end of the cable core 35 off, in a predetermined distance to the clamping connection.

As shown particularly in Fig. 3, only then a longitudinal movement of the plunger 2 in the handle 16 is obtained, when the locking device 3 is turned about the axle 26, and the latch 10 placed against the front face 32 of the handle 16 is, thus, unlocked. Turning the latch 10 is effected by the tracer 6 over the tracer bar 9. The tracer 6 is actuated only, when it is guaranteed that the cable core 35 to be connected has attained its final position in the contact slot 38. Only then are the tracer 6 and, thus, the tracer

bar 9 moved against the direction of the arrow 39 by support on the component 8 of the terminal bank 36. By unlocking the latch 10 of the locking device 3, the longitudinal displacement of the plunger 3 is released, and the cutting-off process is initiated.

In case of multiple terminations, if, e.g., two cable cores are to be connected to one cutting and clamping contact, the latch 10 of the unlocking device 3 can be unlocked even without an actuation of the tracer 6. For this purpose, as shown in Fig. 2, a U-shaped wire clip 44 is fastened outside the housing shells 14, 15 as an unlocking device 13 at its two arm ends 45. By turning the wire clip 44 by hand, the central section of the wire clip 44 presses against the latch 10, and turns, thus, the latch 10 of the locking device 3 inwardly, the longitudinal displacement of the plunger 2 being, thus, released.

In case, however, it is intended to release the longitudinal displacement of the plunger 2 neither by the tracer 6 nor by the unlocking device 13, the plunger 2 is fixed by turning the rotary knob 21. The mode of operation of the rotary knob is described in detail in EP-PS 0040307.

LIST OF REFERENCES

1	tool
2	plunger
3	locking device
4	shear arm
5	plunger head
6	tracer
7	cutting and clamping contact
8	component
9	tracer bar
10	latch
11	press-in web
12	tool housing
13	unlocking device
14,15	housing shells
16	handle
17	screws
18	extension
19	slider
20	compression springs
21	rotary knob
22	arm spring
23	borehole
24,25	side walls
26	axle
27,28	arms
29	cutting-off device
30	transverse wall
31	side wall
32	front face
33	aperture
34	front wall
35	cable core
36	terminal bank
37	borehole
38	contact slot
39	arrow
40,41	compression spring
42	pin
43	longitudinal slot
44	wire clip
45	arm ends



PATENT CLAIMS

1. A tool for connecting a cable core, in particular of communication cables, to cutting and clamping contacts, comprising a plunger being longitudinally displaceable in the tool housing, and a cutting device for the cable core, said cutting device being disposed at the plunger head, and the longitudinal displacement of the plunger serving for tripping the cutting process,

characterised by that at the plunger (2), a locking device (3) is arranged, said locking device (3) blocking the longitudinal displacement of the plunger (2) relative to the housing (12), and that at the plunger head (5), a tracer (6) is arranged, said tracer (6) releasing the locking device (3) when actuated by the cutting and clamping contact (7) or by the component (8) surrounding the latter, resp.

2. A tool according to claim 1,
characterised by that the tracer (6) acts, over a tracer bar (9), on a spring-loaded latch (10) of the locking device (3).

3. A tool according to claim 1,
characterised by that the tracer (6) is supported between two press-in webs (11) of the plunger head (5).

4. A tool according to claim 1,
characterised by that at the tool housing (12), an unlocking device (13) for unlocking the spring-



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loaded latch (10) of the locking device (3) is provided.